

**UNITED STATES DISTRICT COURT**  
**DISTRICT OF MINNESOTA**

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ARCTIC CAT, INC.,

Civil No. 12-2692 (JRT/LIB)

Plaintiff,

v.

BOMBARDIER RECREATIONAL  
PRODUCTS INC. and BRP U.S. INC.,

**SEALED MEMORANDUM OPINION  
AND ORDER GRANTING  
DEFENDANTS' MOTION FOR  
SUMMARY JUDGMENT**

Defendants.

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Niall A. MacLeod and Aaron A. Myers, **KUTAK ROCK LLP**, 60 South Sixth Street, Suite 3400, Minneapolis, MN 55402, for plaintiff.

Robert K. Goethals, **LOCKE LORD LLP**, Three World Financial Center, New York, NY 10281, Kevin D. Conneely and Ruth A. Rivard, **STINSON LEONARD STREET LLP**, 50 South Sixth Street, Suite 2600, Minneapolis, MN 55402, for defendants.

Arctic Cat Inc. brought this patent-infringement action against Bombardier Recreational Products (“BRP”), accusing BRP’s snowmobile engines of infringing several of Arctic Cat’s patents related to engine ignition-timing systems. BRP moves for summary judgment of noninfringement of all asserted claims. Because the Court finds that there is no genuine dispute of material fact that BRP’s engines do not “select” ignition patterns based on sensed exhaust gas temperature – either literally or under the doctrine of equivalents – the Court will grant BRP’s motion for summary judgment of noninfringement and enter judgment for BRP.

## BACKGROUND

This patent case involves snowmobile engines – specifically the ignition-timing systems in those engines. Arctic Cat filed this patent-infringement action against BRP, alleging that certain BRP snowmobile engines (the “Accused Products”) infringe three of Arctic Cat’s patents: U.S. Patent No. 6,237,566 (“the ’566 Patent”), U.S. Patent No. 6,371,082 (“the ’082 Patent”), and U.S. Patent No. 6,550,450 (“the ’450 Patent”) (collectively “the Patents-in-Suit”).<sup>1</sup> (Decl. of Robert K. Goethals (“Goethals Decl.”), ¶¶ 6-8, Exs. 3-5, Mar. 21, 2017, Docket No. 256.)

Arctic Cat asserts that BRP infringes claims 1, 3-8 and 10-14 of the ’566 patent; claims 1, 3-8 and 10-14 of the ’082 patent; and claims 1-3, 5-11 and 13-21 of the ’450 patent (collectively “the Asserted Claims”). (Goethals Decl. ¶¶ 12-15, Exs. 9-12.)

### I. THE PATENTS-IN-SUIT

The Patents-in-Suit are part of the same patent family, have the same title, share a common specification, and claim similar subject matter – two-stroke engines that electronically control the engine’s ignition timing by using sensed exhaust gas temperature to select an ignition pattern and activate the engine’s ignition source according to that pattern. (See Goethals Decl. ¶¶ 6-8, Exs. 3-5.) Claim 1 of the ’450 patent is representative of the Asserted Claims. It provides in relevant part:

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<sup>1</sup> Arctic Cat originally asserted five patents in this action: the Patents-in-Suit along with U.S. Patent No. 6,951,203 (“the ’203 Patent”) and U.S. Patent No. 7,258,107 (“the ’107 Patent”). (Compl. ¶¶ 14-15, 33-42, Oct. 19, 2012, Docket No. 1.) Pursuant to the parties’ agreements and the Court’s Orders, the ’203 and ’107 Patents are no longer part of this case. (Order, Dec. 23, 2016, Docket No. 248; Order, Oct. 16, 2017, Docket No. 435.)

A two-cycle engine, comprising:

a cylinder;

a piston . . . ;

an ignition source . . . ;

a controller for activating the ignition source . . . , the controller containing a plurality of ignition patterns, each of said patterns reflecting desired ignition points that vary as a function of the operation speed of the engine; and

a sensor for sensing a temperature of exhaust gas from the cylinder and for providing a signal to the controller indicative of the temperature of the exhaust gas;

**wherein the controller selects an ignition pattern based upon the sensed exhaust gas temperature.**

('450 Patent at 7:30-48 (emphasis added).)

## II. CLAIM CONSTRUCTION

The Court issued its claim-construction order last November. *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, No. 12-2692, 2016 WL 6832623 (D. Minn. Nov. 18, 2016). Among other things, the Court construed “ignition pattern” to mean “[a] set of at least two ignition timing settings, in which the ignition timing settings vary based on engine speed [and throttle position].” 2016 WL 6832623, at \*3-7. The Court also found that prosecution history disclaimer applied to the Patents-in-Suit, and the Court issued the following constructions for claim 1 for each of the Patents-in-Suit:

Claim 1 of the '450 patent: “The controller selects an ignition pattern **for a particular engine operating condition** as indicated by the sensed exhaust gas temperature . . . .”

Claim 1 of the '566 and '082 patents: “The particular ignition pattern used by the controller being selected **for a particular engine operating condition** as indicated by the sensed exhaust gas temperature . . . .”

*Id.* at \*10-11 (emphases added). The Court employed the same prosecution history disclaimer to construe other claims of the Patents-in-Suit similarly. *Id.* at \*11-12.

The parties agreed that “select,” “selecting,” and “selected” should have their plain and ordinary meaning, that is “to choose in preference to another or others; pick out,” “to make a choice; pick.” (Defs.’ Claim Construction Br. at 5, Dec. 7, 2015, Docket No. 229; Pl.’s Claim Construction Br. at 11, Dec. 7, 2015, Docket No. 231.)

### **III. THE ACCUSED PRODUCTS**

The Accused Products are snowmobile engines – not the snowmobiles themselves. Arctic Cat accuses BRP’s E-TEC engines of patent infringement. The E-TEC engines are direct-injection engines, which are different from BRP’s semi-direct injection (“SDI”) engines. Arctic Cat does not accuse BRP’s SDI engines of infringing the Patents-in-Suit. (See Goethals Decl. ¶ 12, Ex. 9 at 3; Sealed Ex. 1 (“Cuzzillo Report”) at 53, Apr. 20, 2017, Docket No. 349.)<sup>2</sup>

An E-TEC engine includes an ignition timing system. (Sealed Decl. of Glenn R. Bower (“Bower Decl.”) ¶¶ 34-35, Mar. 21, 2017, Docket No. 261.) That system includes an electronic control module, or ECM.<sup>3</sup> (*Id.*) The ECM receives input from a number of sensors, including an exhaust gas temperature sensor. (*Id.*) The ECM also transmits

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<sup>2</sup> Arctic Cat alleged that BRP’s SDI engines infringed only the ’107 patent (Goethals Decl. ¶ 12, Ex. 9 at 3), which has since been removed from this case (Order, Dec. 23, 2016, Docket No. 248).

<sup>3</sup> The ECM is alleged to be the “controller” in the Asserted Claims. (Goethals Decl. ¶ 12, Ex. 9.)

output signals to various engine components, including an ignition coil that activates the engine's spark plug. (*Id.*)

The parties do not dispute how the E-TEC engine's ECM determines an ignition timing point for a given engine cycle. First, the ECM selects one of four ignition timing base maps. (*Id.* ¶¶ 37-38.) The ECM selects which of the four base maps to use based on altitude and fuel octane quality. (*Id.*) Those base maps contain ignition timing settings that vary based on engine speed and throttle position. (*Id.* ¶¶ 39-41.) Next, the ECM extracts an ignition point from the selected base map based on engine speed and throttle position. (*Id.*) Then, the ECM determines, based on input from several sensors, whether to use any of six correction maps – each containing correction (or adjustment) values for the ignition timing point – and, if so, extracts correction values from the applicable correction map or maps. (*Id.* ¶¶ 42-54.) Finally, the ECM sums the correction values, applies them to the initially extracted ignition timing point to obtain a final ignition point, and transmits that final ignition timing point to the ignition coil, which in turn fires the spark plug. (*Id.* ¶¶ 55-57.) This entire process repeats for each engine cycle, typically hundreds of times per second. (*Id.* ¶ 57.)

The E-TEC engine's ECM uses sensed exhaust gas temperature in its ignition timing system in two of the six correction maps: the Dynamic Acceleration Correction map and the Muffler Overheat Protection map. (*Id.* ¶¶ 47-53.) It is the use of sensed exhaust gas temperature in those two correction maps that gives rise to Arctic Cat's allegations of patent infringement.

## DISCUSSION

### I. STANDARD OF REVIEW

Summary judgment is appropriate when there are no genuine issues of material fact and the moving party can demonstrate that it is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(a). A fact is material if it might affect the outcome of the lawsuit, and a dispute is genuine if the evidence could lead a reasonable jury to return a verdict for either party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). A court considering a motion for summary judgment must view the facts in the light most favorable to the nonmoving party and give that party the benefit of all reasonable inferences to be drawn from those facts. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986). Summary judgment is appropriate if the nonmoving party “fails to make a showing sufficient to establish the existence of an element essential to that party’s case, and on which that party will bear the burden of proof at trial.” *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986). “To defeat a motion for summary judgment, a party may not rest upon allegations, but must produce probative evidence sufficient to demonstrate a genuine issue [of material fact] for trial.” *Davenport v. Univ. of Ark. Bd. of Trs.*, 553 F.3d 1110, 1113 (8<sup>th</sup> Cir. 2009). In patent cases, “summary judgment of noninfringement is proper when no reasonable factfinder could find that the accused product contains every claim limitation or its equivalent.” *Medgraph, Inc. v. Medtronic, Inc.*, 843 F.3d 942, 949 (Fed. Cir. 2016).

## **II. NONINFRINGEMENT**

BRP argues that the Accused Products do not infringe the Asserted Claims for either of two reasons. First, the Accused Products do not use sensed exhaust gas temperature as an indicator of engine operating conditions as the Court's claim-construction order requires. Second, the Accused Products do not use sensed exhaust gas temperature to select an ignition pattern.

Although there remains a genuine dispute of material fact about whether the Accused Products use sensed exhaust gas temperature as an indicator of engine operating conditions, no reasonable jury could find that the Accused Products use sensed exhaust gas temperature to "select" an ignition pattern – either literally or under the doctrine of equivalents. Thus, there is no genuine dispute of material fact that the Accused Products do not infringe the Asserted Claims, and BRP is entitled to judgment as a matter of law.

### **A. Engine Operating Conditions**

There remains a genuine dispute of material fact about whether the Accused Products use sensed exhaust gas temperature as an indicator of engine operating conditions.

Arctic Cat presents evidence, viewed in the light most favorable to it, from which a reasonable jury could conclude that the Accused Products use sensed exhaust gas temperature as an indicator of engine conditions. First, in a letter to the United States Environmental Protection Agency, BRP referred to the exhaust gas temperature sensor as an "Engine Sensor," and stated that sensed exhaust gas temperature can be used to

“optimize[] air-fuel ratio.” (Sealed Ex. 4, Apr. 11, 2017, Docket Nos. 289 & 291.)

Second, a shop manual for a BRP snowmobiles with an E-TEC engine states: “The ECM is programmed with data (ignition mappings). **Using engine operating parameters** provided by the sensors, the ECM controls the ignition timing for optimum engine operation **under all operating conditions**. Ignition timing can be adjusted . . . .” (Cuzzillo Report at 27, 30 (emphases added).) Third, there is testimony that the “purpose of the exhaust gas temperature sensor” is “to prevent high speed engine miss.”<sup>4</sup> (Sealed Ex. 11 (“Schuehmacher Dep.”) 16:15-17:6, 103:9-104:12, Apr. 12, 2017, Docket No. 305.) Fourth, there is expert testimony from both Arctic Cat and BRP that sensed exhaust gas temperature can be used as an indicator of engine conditions. (See Cuzzillo Dep. at 93:11-19;<sup>5</sup> Sealed Ex. 9 (“Bower Dep.”) 65:3-9, Apr. 12, 2017, Docket No. 301.) Fifth, because the Accused Products use sensed exhaust gas temperature to modify ignition timing, a reasonable jury could conclude that the Accused Products use sensed exhaust gas temperature as an indicator of ignition timing.<sup>6</sup>

Viewed in the light most favorable to Arctic Cat, the Court finds that a reasonable jury could find that the Accused Products use sensed exhaust gas temperature as an

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<sup>4</sup> “Engine miss” occurs when the engine misfires and temporarily produces no power. (Cuzzillo Report at 53.)

<sup>5</sup> Excerpts of Dr. Cuzzillo’s deposition are scattered throughout the record. (See Decl. of Niall A. MacLeod ¶¶ 7-9, Exs. 6-8, Apr. 11, 2017, Docket No. 288; Decl. of Robert K. Goethals ¶¶ 5-6, Exs. 2-3, Apr. 20, 2017, Docket No. 348; Decl. of Niall A. MacLeod ¶¶ 3-5, Exs. 2-4, May 11, 2017, Docket No. 385.)

<sup>6</sup> Counsel for BRP admitted at the motion hearing that it is unclear whether ignition timing is an engine operating condition.



indicator of engine operating conditions. BRP is therefore not entitled to summary judgment of noninfringement on this ground.

## **B. Selecting Ignition Patterns**

There is, however, no genuine dispute of material fact that the Accused Products do not “select” ignition patterns based on sensed exhaust gas temperature. No reasonable jury could find that the Accused Products literally “select” ignition patterns. And prosecution history estoppel prevents Arctic Cat from asserting its broad theory of infringement by equivalents. Since infringement requires that each and every claim limitation be present in the Accused Products, and since this limitation is absent, BRP is therefore entitled to summary judgment of noninfringement.

### **1. Literal Infringement**

The Court construed “ignition pattern” to mean “[a] set of at least two ignition timing settings, in which the ignition timing settings vary based on engine speed [and throttle position].” *Arctic Cat*, 2016 WL 6832623, at \*5-7. In the Accused Products, the ECM first selects a base map, and later may select one or more correction maps. But no base map or correction map is an “ignition pattern” that the ECM selects based on sensed exhaust gas temperature. The base maps – while containing a set of at least two ignition timing settings that vary based on engine speed and throttle position – are not selected by the ECM based on sensed exhaust gas temperature. Instead, the ECM selects the base map based on altitude and fuel quality. And the correction maps do not contain ignition timing settings that vary based on engine speed – the settings therein vary based on other

parameters, such as engine coolant temperature, air temperature, air pressure, and sensed exhaust gas temperature. Thus, neither the base maps nor the correction maps in the Accused Products are ignition patterns that are selected by the controller based on sensed exhaust gas temperature.

In light of the Court's construction of "ignition pattern," Arctic Cat wisely does not identify either the base maps or the correction maps stored in the ECM as being "ignition patterns" in the Accused Products. Instead, Arctic Cat identifies "ignition patterns" contained within a series of three-dimensional graphs that display the aggregate final ignition timing points that the Accused Products output. (Goethals Decl. ¶ 12, Ex. 9; Cuzzillo Report at 28, 35-36, 42, 44, 47, 50; Pl.'s Opp. to Defs.' Mot. Summ. J. ("Pls.' Opp.") at 29-36, Apr. 11, 2017, Docket No. 286.) These graphs – called Final Output Maps and created by Arctic Cat's technical expert – show how the Accused Products vary ignition timing based on engine speed, throttle position, and sensed exhaust gas temperature. (Cuzzillo Report at 28, 35-36, 42, 44, 47, 50.) Neither the Final Output Maps nor the final ignition timing points mapped therein are stored in the ECM's memory. (*See id.*; Pl.'s Opp. at 36.)

Arctic Cat maintains that the "ignition patterns" that it identifies meet the Court's construction of "ignition pattern." And indeed they might. Critically, however, Arctic Cat presents no evidence that the ignition patterns it identifies are "selected" by the ECM

in the Accused Products.<sup>7</sup> The parties did not seek construction of “select,” instead agreeing that “select” should be given its plain and ordinary meaning – for example, to ‘pick’ or ‘choose.’ Applying the plain and ordinary meaning of “select,” no reasonable jury could find that the ECM selects (i.e., ‘picks’ or ‘chooses’) any of the ignition patterns that Arctic Cat identifies. Rather, the ignition patterns that Arctic Cat identifies in its Final Output Maps are, at best, **produced by** the ECM, not selected by it.

*Microsoft Corp. v. GeoTag, Inc.*, 817 F.3d 1305 (Fed. Cir. 2016), confirms that summary judgment of no literal infringement is appropriate. In *GeoTag*, the asserted system claims required a search engine first to search for a topic within a limited geographic area, then to “dynamically replicate[]” the search in other geographic areas, and then to automatically combine the searches’ results. *Id.* at 1308. The accused products, however, first conducted a broad, non-geographically limited search, and then consecutively filtered the search results by geographic area. *Id.* at 1309. Although the accused products produced the same result, they did not infringe because they did not perform the steps in the manner that the asserted claims required. *Id.* at 1313-15.

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<sup>7</sup> Claim 1 of the ’450 patent includes the limitation, phrased in the active voice, “wherein the controller selects an ignition pattern.” (’450 Patent at 7:47-48.) The other independent product claims of the Patents-in-Suit use the passive-voice limitation “being selected,” (’082 Patent at 7:34; ’566 Patent at 6:45), and the independent method claims of the Patents-in-Suit use “selecting,” (’450 Patent at 8:11, 8:58; ’082 Patent at 8:24; ’566 Patent at 7:9). At the motion hearing, Arctic Cat’s counsel admitted that all the Asserted Claims require that the controller select an ignition pattern. The parties have not argued either that the difference in verb voice among the product claims or that the difference in wording between the product claims and method claims materially changes the scope of the Asserted Claims with respect to the “select” limitation. Moreover, the specifications of the Patents-in-Suit state that the controller selects the ignition pattern. (’450 Patent at 3:39-41; ’082 Patent at 3:37-39; ’566 Patent at 3:23-25.)

Similar to the patentee in *GeoTag*, Arctic Cat argues that the proper focus should be on the final ignition timing points, rather than on the process by which the Accused Products determine the ignition point. For support, Arctic Cat points to the limitation in the Asserted Claims that the controller “activat[es] the ignition source **according to** an ignition pattern,” (*e.g.*, ’566 Patent at 6:35-38 (emphasis added)) and that the Asserted Claims do not require that the controller “activate” a pattern.<sup>8</sup> While Arctic Cat is correct that the controller must activate the ignition source according to an ignition pattern – and thus that it might be proper to focus on final ignition timing points for the “according to” limitation – the controller must still **select** an ignition pattern. And it is that latter limitation that the Accused Products literally lack. Like *GeoTag*, Arctic Cat cannot – at least for literal infringement – point to the Accused Products’ produced patterns as evidence that the Accused Products select those patterns.<sup>9</sup> Arctic Cat’s arguments on literal infringement are better suited for claim construction (which is over) or the doctrine of equivalents (discussed below).

No reasonable jury could find that the Accused Products literally “select” ignition patterns based on sensed exhaust gas temperature. The Accused Products’ ECM selects

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<sup>8</sup> The Asserted Claims do not require that the controller **activate** an ignition pattern – they require that it **select** one.

<sup>9</sup> Moreover, Arctic Cat’s argument would make the phrase “being selected based upon” in the Asserted Claims essentially mean “being based upon.” Such a result would be contrary to the axiom that every word in a patent claim should have force and meaning. *See, e.g., TGIP, Inc. v. AT&T Corp.*, 512 F. Supp. 2d 696, 712 (E.D. Tex. 2007) (“[I]n patent law, it is well established that . . . ‘every word used in a claim has a meaning.’” (quoting *Orion IP, LLC v. Staples, Inc.*, 406 F. Supp. 2d 717, 738 (E.D. Tex. 2005))).

base maps and correction maps, but neither are an ignition pattern selected based on sensed exhaust gas temperature. The only “ignition patterns” that Arctic Cat identifies are not “selected” by the Accused Products’ controller; they are produced by it. BRP is therefore entitled to summary judgment of no literal infringement of all Asserted Claims.<sup>10</sup>

## 2. Doctrine of Equivalents

When no literal infringement occurs, the accused products may still “be found to infringe if there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention.” *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997) (quoting *Graver Tank Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950)). Equivalence is determined “on an element-by-element basis,” asking “whether a substitute element matches the function, way, and result of the claimed element, or whether the substitute element plays a role substantially different from the claimed element.” *Id.* at 40.

BRP does not seek summary judgment on the ground that no reasonable jury could find that the Accused Products meet the function-way-result test – a quintessential question of fact. *E.g., Intendis GMBH v. Glenmark Pharm. Inc.*, 822 F.3d 1355, 1360-61 (Fed. Cir. 2016). Instead, BRP argues that the doctrine of equivalents is unavailable to Arctic Cat for four reasons: (1) failure to assert the doctrine of equivalents in

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<sup>10</sup> The parties have not differentiated any of their infringement or noninfringement arguments by patent or by claim.

infringement contentions; (2) prosecution history estoppel; (3) ensnarement of the prior art; and (4) claim vitiation. These arguments raise questions of law appropriate for summary judgment.<sup>11</sup>

**a. Arctic Cat's Infringement Contentions**

BRP argues that Arctic Cat failed to make a doctrine-of-equivalents contention for “claim limitations requiring that an ignition pattern is selected based on sensed exhaust gas temperature,” and should therefore be precluded from asserting infringement-by-equivalence for those limitations. (Defs.’ Sealed Mem. Supp. Summ. J (“Defs.’ Mem.”) at 34, Mar. 21, 2017, Docket No. 254.) BRP argues that Arctic Cat’s infringement contentions contain only an “‘invention as a whole’ type of [doctrine-of-equivalents] infringement assertion [that] does not satisfy the element-by-element standard set by the Supreme Court in *Warner-Jenkinson*” or the Court’s Pretrial Scheduling Order. (*Id.* at 34-35.)

In relevant part, Arctic Cat’s doctrine-of-equivalents contention reads:

In the BRP engines, the logic, functions and operations of the ECMs, including the maps shown in “EGT sensor ignition correction maps structure” documents produced by BRP, perform substantially the same function (activating the ignition to deliver a spark to the cylinder) in substantially the same way (activating the ignition based on an ignition patterns [sic] illustrated in graphs and/or maps corresponding to an identified temperature range), to produce substantially the same result

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<sup>11</sup> *Realtime Data, LLC v. Morgan Stanley*, 554 F. App’x 923, 937-38 (Fed. Cir. 2014) (infringement contentions); *Honeywell Int’l Inc. v. Hamilton Sundstrand Corp.*, 370 F.3d 1131, 1139 (Fed. Cir. 2004) (en banc) (prosecution history estoppel); *Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co.*, 204 F.3d 1360, 1363-64 (Fed. Cir. 2000) (ensnarement); *Cordis Corp. v. Bos. Sci. Corp.*, 561 F.3d 1319, 1330 (Fed. Cir. 2009) (claim vitiation).

(**ignition timing is a function of exhaust temperature**, throttle position and engine speed).

In addition, any differences in the logic, functions, or operations of the BRP control units (ECMs) is insubstantial. **The . . . patent discloses use of multiple maps/tables and graphs that may be used in determining ignition timing.**

(*See, e.g.*, Goethals Decl. ¶ 13, Ex. 10 at 14-15 (emphases added).)<sup>12</sup>

This contention is broad, but sufficient.<sup>13</sup> Arctic Cat’s broad contention encompasses both the “controller” and the “selected based upon the sensed exhaust gas temperature” claim elements. The contention’s discussion of the ECM indicates that Arctic Cat will be asserting equivalence to the controller claim elements. The contention also references an equivalent to the selection claim elements by alleging that the ECMs activate “the ignition based on [] ignition patterns illustrated in graphs and/or maps corresponding to an identified temperature range.” Moreover, for ignition timing to be “a function of exhaust temperature, throttle position and engine speed,” as the contention alleges, the ECMs must logically contain some equivalent to the selection elements.

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<sup>12</sup> Arctic Cat’s theory of infringement by equivalents is the same for all the Patents-in-Suit. (Goethals Decl. ¶¶ 13-15, Ex. 10 at 14, Ex. 12 at 16, Ex. 13 at 15.)

<sup>13</sup> BRP’s argument that Arctic Cat has failed to meet the requirements of the Pretrial Scheduling Order is inapplicable this late in the litigation. Infringement contentions are a discovery tool, designed to put the accused infringer on notice of the patentee’s theories of infringement. *E.g., Biscotti Inc. v. Microsoft Corp.*, No. 13-1015, 2017 WL 2267283, at \*4 (E.D. Tex. May 24, 2017). If BRP considered Arctic Cat’s doctrine of equivalents contentions deficient, the proper remedy would have been non-dispositive motion practice. *See In re Vehicle Tracking & Sec. Sys. (’844) Patent Litig.*, No. 11-2249, 2012 WL 3776463, at \*2-3 (D. Minn. Aug. 30, 2012). BRP did not avail itself of such a remedy, and the deadline for non-dispositive motion practice has passed. (Order Am. Pretrial Sched. Order at 2, Feb. 8, 2017, Docket No. 251.)

Arctic Cat is therefore not precluded from using the doctrine of equivalents for the selection elements.

Arctic Cat's contention does indeed lack the element-by-element analysis that Arctic Cat would have to present at trial. *See Warner-Jenkinson*, 520 U.S. at 40. But that standard does not apply to the sufficiency of infringement contentions. *Warner-Jenkinson* holds that “[t]he **determination** of equivalence should be applied . . . on an element-by-element basis,” not that equivalence-based infringement contentions must be set forth on an element-by-element basis. *Id.* (emphasis added). Because BRP's motion does not require the Court to make a determination of equivalence, *Warner-Jenkinson* does not apply.

Arctic Cat properly raised the doctrine of equivalents for both the controller elements and the selection elements. Thus, Arctic Cat is not barred from asserting the doctrine of equivalents on those elements due to the contention's lack of specificity. *E.g.*, *MediaTek Inc. v. Freescale Semiconductor, Inc.*, No. 11-5341, 2014 WL 2854773, at \*1 (N.D. Cal. June 20, 2014) (holding that a short doctrine-of-equivalents contention sufficiently put the accused infringer on notice of the “nature of [the] theory,” and that it was “not a boilerplate reservation” (quoting *Dynetix Design Sols., Inc. v. Synopsys, Inc.*, No. 11-5973, 2013 WL 4537838 (N.D. Cal. Aug. 22, 2013))).

#### **b. Prosecution History Estoppel**

Under prosecution history estoppel, “the surrender of subject matter during patent prosecution creates a presumption that the patentee is precluded from recapturing that



subject matter through the doctrine of equivalents . . . .” *AquaTex Indus., Inc. v. Techniche Sols.*, 479 F.3d 1320, 1325 (Fed. Cir. 2007). This bar arises only when a patentee makes “clear and unmistakable surrenders of subject matter.” *Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157, 1177 (Fed. Cir. 2008). The scope of surrendered subject matter is determined by objectively considering the entire prosecution record and determining “whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter.” *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1457 (Fed. Cir. 1998) (en banc), *abrogated on other grounds by Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831 (2015).

BRP cites two alleged disclaimers that give rise to prosecution history estoppel. First, BRP references a disclaimer that the Court identified at claim construction for when “sensed exhaust gas temperature is used as an indicator of engine conditions.” *Arctic Cat*, 2016 WL 6832623, at \*9.<sup>14</sup> But Arctic Cat’s doctrine-of-equivalents position would not reclaim any of this surrendered scope. BRP argues that the Accused Products “use sensed exhaust gas temperature as an indicator of the exhaust gas temperature itself,” like prior-art references Wahl (U.S. Patent No. 4,015,566) and Morikawa (U.S. Patent No. 5,050,551), and not for “a particular engine operating condition.” (Defs.’ Mem. at 37.) The Court has already found that there remains a genuine dispute of material fact about whether the Accused Products use sensed exhaust gas temperature as an indicator of

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<sup>14</sup> Prosecution history disclaimer and prosecution history estoppel have similar standards, though the doctrines are distinct. *Trading Techs. Int’l, Inc. v. Open E Cry, LLC*, 728 F.3d 1309, 1321-23 (Fed. Cir. 2013).

engine operating conditions. Moreover, the Court rejects BRP's simplistic portrayal of how the Accused Products use exhaust gas temperature – by BRP's own admission, the Accused Products sometimes use correction maps to determine a correction value based on sensed exhaust gas temperature. (*See, e.g., id.* at 22.)

Arctic Cat's equivalency position relies on these correction maps, alleging that BRP's engines "activat[e] the ignition based on an ignition patterns illustrated in graphs and/or maps corresponding to an identified temperature range." (Goethals Decl. ¶ 13, Ex. 10 at 14.) In other words, Arctic Cat contends that the Accused Products' correction maps use sensed exhaust gas temperature as more than merely an indicator of engine operating conditions. BRP does not argue that the disclaimer's scope includes using sensed exhaust gas temperature as more than an indicator of engine conditions, so this disclaimer does not bar Arctic Cat from asserting the doctrine of equivalents.

Second, BRP identifies a disclaimer in a statement made during prosecution about Wahl:

In contrast, **Wahl merely teaches that ignition timing** on a four stroke engine **can be controlled electronically by sensed properties** that are converted to electric voltages. **The reference discloses a variety of properties that can be sensed and used as input for the ignition timing, including** engine speed (col. 2, line 47), induction pipe pressure (col 2, line 58), throttle position (col. 2, line 61), **exhaust gas temperature** (col. 3, line 21) and exhaust gas composition (col. 3, line 24). Nothing in the reference teaches or suggests that exhaust temperature is used to select between different patterns of ignition with respect to engine speed. Thus, Wahl neither discloses nor even suggests the present invention.

(Goethals Decl. ¶ 17, Ex. 14 at 4 (emphases added).)

The Court reads this statement as a clear and unmistakable surrender of subject matter. It states that Wahl discloses the use of sensed inputs (specifically engine speed, induction pipe pressure, throttle position, exhaust gas temperature, and exhaust gas composition) to electronically control ignition timing. Based on this statement attributing the subject matter to another reference, a competitor would reasonably believe that Arctic Cat had surrendered it. *See Cybor*, 138 F.3d at 1457 (“The relevant inquiry is whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter.”). Arctic Cat is therefore estopped from asserting that the use of sensed exhaust gas temperature as a sensed input for ignition timing is equivalent to selecting an ignition pattern based on sensed exhaust gas temperature.

As discussed, Arctic Cat advances a very broad equivalency position – so broad that it overlaps with the disclaimed subject matter. Arctic Cat’s contention references the selection elements in its assertion that the Accused Products “activat[e] the ignition **based on** an ignition patterns illustrated in graphs and/or maps corresponding to an identified temperature range” such that “ignition timing **is a function of** exhaust temperature, throttle position and engine speed.” (Goethals ¶ 13, Ex. 10 at 14 (emphases added).) Thus, in Arctic Cat’s view, a product would infringe under the doctrine of equivalents if it activates ignition timing “based on” ignition patterns such that ignition timing “is a function of” sensed exhaust gas temperature. Put another way, Arctic Cat’s position is that any process that varies ignition timing based on sensed exhaust gas temperature is equivalent to “selecting” an ignition pattern based on sensed exhaust gas temperature. The problem with Arctic Cat’s broad equivalency position is this: if a

process's output is a function of some variable, then that variable necessarily is an input into the process. Therefore, the most straightforward and logically correct reading of Arctic Cat's contention is that the Accused Products' use of sensed exhaust gas temperature as an input for controlling ignition timing is equivalent to selecting an ignition pattern based on sensed exhaust gas temperature.

Comparing Arctic Cat's equivalency position to the inventor's disclaimer, prosecution history estoppel bars Arctic Cat from asserting the doctrine of equivalents for elements requiring that the controller select an ignition pattern based on sensed exhaust gas temperature. Wahl discloses the use of inputs such as sensed exhaust gas temperature for ignition timing. Arctic Cat's broad equivalency position covers the same subject matter, and therefore cannot be advanced.

### **c. Ensnarement of the Prior Art**

Patentees are barred from asserting an equivalency scope that would encompass, or "ensnare," the prior art. *Wilson Sporting Goods Co. v. David Geoffrey & Assoc.*, 904 F.2d 677, 683 (Fed. Cir. 1990). This prevents patentees from undeservedly taking an "exclusive right to technology already in the public domain." *Marquip, Inc. v. Fosber Am., Inc.*, 198 F.3d 1363, 1367 (Fed. Cir. 1999). Deciding "whether an asserted range of equivalents would cover what is already in the public domain" – in other words, whether the asserted equivalents ensnare the prior art – is a question of law for which Arctic Cat bears the burden of persuasion. *See Wilson Sporting Goods*, 904 F.3d at 683, 685. But BRP, as the movant at summary judgment, must show that there is "no genuine issue as

to any material fact,’ since a complete failure of proof concerning an essential element of the nonmoving party’s case necessarily renders all other facts immaterial.” *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986) (quoting Fed. R. Civ. P. 56).

To determine whether an asserted equivalency ensnares the prior art, the Court generally evaluates a hypothetical claim broad enough to literally cover the accused product and determines whether that hypothetical claim avoids the prior art. *Wilson Sporting Goods*, 904 F.3d at 684-85; *see also Streamfeeder, LLC v. Sure-Feed Sys., Inc.*, 175 F.3d 974, 981-84 (Fed. Cir. 1999) (describing the hypothetical-claim analysis).

Neither party provides a sufficient ensnarement analysis for summary judgment. BRP argues that any hypothetical claim would necessarily ensnare U.S. Patent No. 5,946,908 (“the ’908 Patent”), but provides no support apart from identifying features of the Accused Products that the ’908 Patent discloses. (*See* Defs.’ Mem. at 44; Bower Decl. ¶ 58.) The similarity in features calls into question whether Arctic Cat’s doctrine-of-equivalents position would ensnare the ’908 Patent, but BRP’s argument is insufficient to show that there is no genuine dispute of material fact on ensnarement. By BRP’s own admission, the ignition system disclosed in the ’908 Patent differs from the Accused Products in at least one way: by using a reference exhaust gas temperature to determine an ignition-timing correction value. (*See* Defs.’ Mem. at 42.)

The Court cannot resolve ensnarement on the current record without a hypothetical claim, leaving a material question as to whether Arctic Cat can assert an equivalency that literally covers the Accused Products but not the ’908 Patent. Arctic Cat refuses to offer a hypothetical claim on the grounds that “the existing [claim] scope

already covers BRP’s products” – a position the Court has already rejected by finding that BRP is entitled to summary judgment of no literal infringement. (Pl.’s Opp. at 51.) Although “nothing in *Wilson* mandates [using a hypothetical claim],” the Court questions whether Arctic Cat will be able to meet its burden of persuasion at trial without one. *See Conroy v. Reebok Int’l, Ltd.*, 14 F.3d 1570, 1576 (Fed. Cir. 1994).

But Arctic Cat need not meet its burden of persuasion here; it need only show that there remains a genuine issue of material fact as to whether applying the doctrine of equivalents would ensnare the prior art, which it has. *See Celotex Corp.*, 477 U.S. at 323. The Court will therefore not grant BRP summary judgment on Arctic Cat’s doctrine-of-equivalents position for ensnarement of the ’908 Patent.

#### **d. Claim Vitiating**

BRP contends that the doctrine of equivalents should be unavailable to Arctic Cat because its equivalency position vitiates the “ignition pattern” and “selecting” limitations of the Asserted Claims. Claim vitiating bars the doctrine of equivalents when “a limitation would be read completely out of the claim” through its application. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1017 (Fed. Cir. 2006). This bar exists to prevent patentees from violating the “all elements” or “all limitations rule,” under which “an accused product or process is not infringing unless it contains each limitation of the claim, either literally or by an equivalent.” *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1358 (Fed.Cir.2005). “A holding that the doctrine of equivalents cannot be applied to an accused device because it ‘vitiates’ a claim limitation

is nothing more than a conclusion that the evidence is such that no reasonable jury could conclude that an element of an accused device is equivalent to an element called for in the claim . . . .” *DuPuy Spine*, 469 F.3d at 1018-19. Accordingly, claim vitiation is most appropriate when the asserted equivalence is the opposite or near-opposite of the claim limitation.<sup>15</sup>

BRP contends that any equivalent to “ignition pattern” would vitiate the Court’s construction that an ignition pattern contains at least two ignition points. But Arctic Cat does not argue that BRP’s base maps or the correction maps are “ignition patterns.” Moreover, the Accused Products contain maps comprised of multiple ignition points. As long as Arctic Cat refrains from arguing that a single ignition point is equivalent to an ignition pattern, the Court finds that the “ignition pattern” limitation is not vitiated.

BRP has not articulated how allowing “determining a correction value” as an equivalent contradicts the “selecting” limitation or reads it out of the claim sufficient to constitute claim vitiation. BRP appears to argue that this limitation is vitiated by not following the plain and ordinary meaning of “select.” But that is an argument on literal infringement – not equivalents. Applying the doctrine of equivalents will cover “subject matter that is ‘beyond,’ ‘ignored’ by, and not included in the literal scope of a claim,” but

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<sup>15</sup> See, e.g., *Am. Calcar Inc. v. Am. Honda Motor Co.*, 651 F.3d 1318, 1338-39 (Fed. Cir. 2011) (holding that a “signal from one source” cannot be equivalent to “signals from a plurality of sources”); *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 955-56 (Fed. Cir. 2006) (holding that “concave” cannot be equivalent to “convex”); *Asyst Techs. Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed. Cir. 2005) (holding that “unmounted” cannot be equivalent to “mounted”); *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 954-55 (Fed. Cir. 1993) (holding that a “solid fiber” cannot be equivalent to a hollow “straw-shaped” element).

doing so is allowable so long as claim limitations are not vitiated. *See DePuy Spine, Inc.*, 469 F.3d at 1018 (quoting *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1317 (Fed. Cir. 1998)). BRP has therefore failed to show that the “selecting” limitation is vitiated by the doctrine of equivalents, such that would entitle BRP to summary judgment.

### CONCLUSION

The process by which the ECMs in BRP’s engines operate is undisputed. As part of determining the ignition timing, the ECM selects base maps and correction maps – neither of which are ignition patterns that the ECM selects based on sensed exhaust gas temperature. Arctic Cat identifies other “ignition patterns”: sets of ignition timing settings contained within final-output graphs created by Arctic Cat’s expert based on the logic of the ECM. But the ECM never selects those ignition patterns. BRP therefore does not infringe the Asserted Claims of the Patents-in-Suit, and it is entitled to summary judgment of noninfringement.

### ORDER

Based on the foregoing, and all the files, records, and proceedings herein, **IT IS HEREBY ORDERED** that

1. Defendants’ Motion for Summary Judgment [Docket No. 252] is **GRANTED**.

2. Plaintiff’s Motion for Summary Judgment [Docket No. 336] is **DENIED without prejudice** as moot.



3. Defendants' Motion to Exclude [Docket No. 343] is **DENIED without prejudice** as moot.

4. Plaintiff's Motion to Exclude [Docket No. 317] is **DENIED without prejudice** as moot.

5. The parties shall show cause on or before twenty-one (21) days from the date of this Order why the Court should not unseal the Order and specify any portion of the Order that warrants redaction.

**LET JUDGMENT BE ENTERED ACCORDINGLY.**

DATED: January 2, 2018  
at Minneapolis, Minnesota.

s/John R. Tunheim  
JOHN R. TUNHEIM  
Chief Judge  
United States District Court